

Appendix G

ENGINEERING DESIGN AND COST ESTIMATES

CAPACITY

The minimum and maximum capacity of each water resource development project expected to be in operation by 2020 was estimated. These capacities are listed in **Table 53 (Chapter 5)** of the Planning Document. The original estimates were developed in the early stages of the Central and Southern Florida Project Comprehensive Review Study (Restudy). The capacities are based on preliminary land suitability analysis used in conjunction with a Geographic Information System (GIS). The analysis included location, land availability, need of the project, and other decisive parameters.

This preliminary analysis and information was assembled as data used in the regional and subregional models. Results regarding sizes, capacities, location, and other parameters were gathered from the models and refined. Other factors such as policies, discussions regarding land acquisition, and other constraints were included in the original estimates.

The capacities of each component are given in acre-feet (ac-ft) and/or million gallons per day (MGD). Surface storage is usually measured in ac-ft to describe an area (acres) filled with water at a certain depth (feet). When a component deals with pumpage, ground water, or Aquifer Storage and Recovery (ASR) the units are presented in MGD to represent a volume of water (million gallons) that are moved in a day.

COST ESTIMATES

The Restudy projects are being refined and implemented in the Comprehensive Everglades Restoration Plan (CERP). The estimated total costs, federal and nonfederal, of each of the CERP projects within the LEC Planning Area and the Caloosahatchee Basin are provided in **Table G-1**. This table also breaks down the costs by Project Implementation Report (PIR), real estate acquisition, design, plans and specifications, and construction costs. Annual estimates of nonfederal funding responsibility for fiscal years 2001 to 2005 and the total cost nonfederal through FY 2020 for these projects are provided in **Tables 93 and 94 (Chapter 6)** of the Planning Document. These projects are described in detail in **Appendix C**.

Table G-1. Estimated Total Costs of CERP Projects.^a

Component	Project Implementation Report	Real Estate Acquisition	Design	Plans and Specs.	Construction	Total
Lake Okeechobee						
Lake Okeechobee Water Supply and Environmental Schedule	\$0	\$0	\$0	\$0	\$0	\$0
Lake Okeechobee ASR	\$45,705,000	\$7,515,001	\$22,851,999	\$7,617,002	\$1,013,623,000	\$1,097,312,002
Lake Okeechobee Service Area						
Lake Okeechobee Watershed Water Quality Treatment Facilities	\$1,970,000	\$14,448,000	\$985,000	\$328,000	\$44,516,000	\$62,247,000
North Of Lake Okeechobee Storage Reservoir	\$3,921,000	\$189,720,001	\$1,961,000	\$654,001	\$88,597,999	\$284,854,001
C-44 Basin Storage Reservoir ^b	\$902,000	\$90,675,000	\$451,000	\$150,000	\$20,384,000	\$112,562,000
C-43 Basin Storage Reservoir with ASR	\$12,926,001	\$132,621,000	\$6,463,000	\$2,154,001	\$286,031,000	\$440,195,002
L-8 Project	See PIR for Storage and ASR Storage	\$4,290,000	\$1,441,000	\$480,000	\$65,105,000	\$71,316,000
Lake Okeechobee Tributary Sediment Dredging	\$157,000	\$900,000	\$78,000	\$26,000	\$3,539,000	\$4,700,001
Taylor Creek/Nubbin Slough Storage and Treatment Area (STA)	\$3,064,000	\$29,700,000	\$1,532,000	\$511,000	\$69,220,000	\$104,027,000
Caloosahatchee Backpumping with STA	\$2,874,000	\$13,179,000	\$1,437,001	\$479,000	\$64,926,000	\$82,895,001
Estuaries						
Environmental Water Supply Deliveries to the Caloosahatchee Estuary	\$0	\$0	\$0	\$0	\$0	\$0
Environmental Water Supply Deliveries to the St. Lucie Estuary	\$0	\$0	\$0	\$0	\$0	\$0
C-23/C-24/Northfork and Southfork Storage Reservoirs ^b	\$11,590,000	\$429,048,000	\$5,795,000	\$1,932,000	\$261,858,000	\$710,223,000
Everglades Agricultural Area						
Everglades Agricultural Area (EAA) Storage Reservoir	\$14,432,001	\$86,536,000	\$7,216,000	\$2,405,000	\$326,059,001	\$436,648,002
Revised Holey Land Wildlife Management Area (WMA) Operation Plan	\$0	\$0	\$0	\$0	\$0	\$0
Modified Rotenberger WMA Operation Plan	\$0	\$0	\$0	\$0	\$0	\$0
North Palm Beach Service Area						
C-17 Backpumping	\$0	\$10,367,001	\$607,001	\$67,000	\$9,149,001	\$20,190,003
Pal-Mar/Corbett WMA Hydropattern Restoration	\$0	\$8,000,000	\$155,000	\$17,000	\$2,328,000	\$10,500,000

Table G-1. Estimated Total Costs of CERP Projects.^a (Continued)

Component	Project Implementation Report	Real Estate Acquisition	Design	Plans and Specs.	Construction	Total
C-51 and Southern L-8 Reservoir	See PIR for Storage and ASR Storage	\$27,351,000	\$6,464,001	\$2,155,000	\$292,086,001	\$328,056,002
Lower East Coast Service Area 1						
Hillsboro (Site 1) Impoundment	\$0	\$23,587,000	\$924,000	\$103,000	\$13,921,000	\$38,535,000
Hillsboro (Site 1) ASR	\$4,197,999	\$0	\$2,099,001	\$700,000	\$85,847,000	\$92,844,000
Acme Basin B Discharge	\$0	\$8,500,000	\$717,000	\$80,000	\$10,803,000	\$20,100,000
C-51 Backpumping and Treatment	\$0	\$13,475,000	\$1,185,001	\$132,000	\$17,840,000	\$32,632,001
C-51 Regional Ground Water ASR	See PIR for Storage and ASR Storage	\$9,945,000	\$2,522,000	\$841,000	\$113,983,000	\$127,291,000
Lake Worth Lagoon Restoration	\$82,000	\$300,000	\$41,000	\$14,000	\$1,863,000	\$2,300,000
Winsburg Farms Wetlands Restoration	\$412,000	\$4,140,000	\$206,000	\$69,000	\$9,313,001	\$14,140,001
Protect/Enhance Existing Wetlands along Loxahatchee National Wildlife Refuge (Strazzulla)	\$0	\$48,972,001	\$235,000	\$26,000	\$3,539,000	\$52,772,001
Palm Beach County Agricultural Reserve Reservoir with ASR	See PIR for Storage and ASR Storage	\$57,657,000	\$1,369,000	\$456,000	\$61,877,000	\$121,359,000
Lower East Coast Service Area 2						
Western C-11 Diversion Impoundment and Canal	\$0	\$82,520,000	\$2,616,000	\$291,001	\$39,410,000	\$124,837,001
C-9 STA/Impoundment	\$0	\$62,939,001	\$1,620,000	\$180,000	\$24,407,001	\$89,146,002
Broward County Secondary Canal System	\$453,001	\$1,919,999	\$226,001	\$75,000	\$10,224,001	\$12,898,002
Lower East Coast Service Area 3						
North Lake Belt Storage Area (NLBSA)	See PIR for Lake Belt Storage and Conveyance	\$154,868,001	\$7,855,999	\$2,618,000	\$335,004,000	\$500,346,000
Central Lake Belt Storage Area (CLBSA)	See PIR for Lake Belt Storage and Conveyance	\$100,359,000	\$8,154,001	\$2,718,000	\$355,494,001	\$466,725,000
C-4 Control Structures	\$76,000	\$495,001	\$38,001	\$13,000	\$1,708,000	\$2,330,002
Pineland and Hardwood Hammocks Restoration	\$25,000	\$0	\$12,000	\$4,000	\$559,000	\$600,000
Bird Drive Recharge Area	\$0	\$71,624,999	\$3,243,000	\$360,001	\$48,855,001	\$124,083,001
L-31N Levee Improvements for Seepage Management	See PIR for Levee Seepage Management	\$0	\$1,414,000	\$471,000	\$63,897,000	\$65,782,000
Dade-Broward Levee/ Pennsuko Wetlands	\$0	\$8,676,000	\$624,000	\$69,000	\$9,409,000	\$18,778,000
Reroute Miami-Dade County Water Supply Deliveries	See PIR for WCA Connectivity	\$25,800,000	\$1,057,001	\$352,001	\$47,764,000	\$74,973,000

Table G-1. Estimated Total Costs of CERP Projects.^a (Continued)

Component	Project Implementation Report	Real Estate Acquisition	Design	Plans and Specs.	Construction	Total
C-111N Spreader Canal	\$1,990,000	\$45,766,001	\$995,000	\$332,000	\$44,952,001	\$94,035,002
South Miami-Dade County Reuse	\$14,827,000	\$3,324,000	\$7,413,001	\$2,471,001	\$334,989,001	\$363,024,003
West Miami-Dade County Reuse	\$17,972,000	\$3,540,001	\$8,986,001	\$2,995,000	\$403,744,000	\$437,237,002
Water Conservation Area 1						
Loxahatchee National Wildlife Refuge Internal Canal Structures	\$453,000	\$345,001	\$0	\$50,000	\$6,821,000	\$7,669,001
Everglades Rain-Driven Operations	\$0	\$0	\$0	\$0	\$0	\$0
Water Conservation Area 2						
Divert Flows from Water Conservation Area (WCA) 2 to CLBSA	See PIR for Lake Belt Storage and Conveyance	\$13,013,000	\$1,357,000	\$452,001	\$61,334,000	\$76,156,001
Water Conservation Area 3						
WCA-3A and WCA-3B Levee Seepage Management	See PIR for Levee Seepage Management	\$85,126,000	\$313,000	\$104,000	\$14,164,000	\$99,707,000
Additional S-345 Structures	See PIR for WCA Connectivity	\$0	\$999,000	\$333,001	\$45,121,000	\$46,453,001
Construction of S-356 Structures and Relocation of a Portion of L-31N Borrow Canal	See PIR for Levee Seepage Management	\$94,704,000	\$431,001	\$144,000	\$19,467,000	\$114,746,001
Decomartmentalize WCA-3	\$2,440,000 (Phase II) For Phase I see PIR for WCA Connectivity	\$479,000	\$1,765,000	\$589,000	\$79,786,001	\$85,059,001
Flow to Northwest and Central WCA-3A	\$855,000		\$427,000	\$142,000	\$19,315,000	\$20,739,000
Divert Flows from WCA-3 to CLBSA	See PIR for Lake Belt Storage and Conveyance	\$308,000	\$10,000	\$3,000	\$444,000	\$765,000
Divert Flows from CLBSA to WCA-3B	See PIR for Lake Belt Storage and Conveyance	\$0	\$141,000	\$47,000	\$6,356,000	\$6,544,000
G-404 Pump Station Modification	\$418,000	\$209,000		\$70,000	\$9,441,000	\$10,138,000
Bays						
Biscayne Bay Coastal Wetlands	\$3,871,001	\$205,655,000	\$1,936,001	\$645,000	\$87,476,001	\$299,583,003
Florida Keys						
Florida Keys Tidal Restoration	\$49,000	\$51,000	\$25,000	\$8,000	\$1,118,000	\$1,251,000
Big Cypress Basin						
Big Cypress/L-28 Interceptor Modifications	\$1,486,000	\$6,700,000	\$743,000	\$248,000	\$33,574,000	\$42,751,000
Micosukee Tribe Water Management Plan	\$937,001	\$1,718,000	\$469,000	\$156,000	\$21,179,001	\$24,459,002

Table G-1. Estimated Total Costs of CERP Projects.^a (Continued)

Component	Project Implementation Report	Real Estate Acquisition	Design	Plans and Specs.	Construction	Total
Seminole Tribe Big Cypress Reservation Water Conservation Plan	\$2,867,000	\$5,735,000	\$1,433,000	\$478,000	\$64,775,000	\$75,288,000
Systemwide						
Melaleuca Eradication Project and Other Exotic Plants	\$0	\$0	\$357,000	\$40,000	\$5,375,001	\$5,772,001
Combined Project Implementation Reports						
PIR for Storage and ASR Storage	\$23,593,999	\$0	\$0	\$0	\$0	\$23,593,999
PIR for Lake Belt Storage and Conveyance	\$35,043,000	\$0	\$0	\$0	\$0	\$35,043,000
PIR for WCA Connectivity	\$5,202,000	\$0	\$0	\$0	\$0	\$5,202,000
PIR for Levee Seepage Management	\$4,317,000	\$0	\$0	\$0	\$0	\$4,317,000

a. Costs are in October 1999 dollars (USACE and SFWMD, 1999).

b. Costs of this project are not included in Table 93 in Chapter 6 of the LEC Plan Planning Document. They will be included in the next update of the Upper East Coast Water Supply Plan.

REFERENCES

USACE and SFWMD. 1999. *Central and Southern Florida Flood Control Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement*. U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, FL, and South Florida Water Management District, West Palm Beach, FL.

